The following Listing of the Claims replaces all prior Listings of the Claims within this application.

**LISTING OF THE CLAIMS**

1. (Currently Amended) A method of fabricating a silicon-on-insulator (SOI) substrate comprising:

providing a structure comprising at least a doped Si-containing substrate that has a porous region of vacancies or voids located therein;

blanket implanting oxygen ions to a uniform depth into said structure using an oxygen dose of about 1E16 to about 5E16 atoms/$cm^2$;

first annealing the structure containing implanted oxygen ions and vacancies or voids in an oxidizing environment to form a silicon-on-insulator structure that includes a doped Si-containing over-layer and a buried oxide, said buried oxide having a thickness of about 100 nm or less; and

next annealing the silicon-on-insulator structure in a hydrogen containing ambient to reduce the level of dopant atoms in the doped Si-containing over-layer within the silicon-on-insulator structure.

2. (Currently Amended) The method of Claim 1 wherein said doped Si-containing substrate is a doped substrate containing n- or p-type dopants.

3. (Currently Amended) The method of Claim 2 wherein said doped Si-containing substrate is a p-type substrate.

4. (Previously Presented) The method of Claim 1 wherein said providing the structure

comprises using an electrolytic anodization process for forming the region of voids or vacancies within the Si-containing substrate.

5. (Original) The method of Claim 4 wherein said electrolytic anodization process is performed in the presence of a HF-containing solution.

6. (Previously Presented) The method of Claim 4 wherein the electrolytic anodization process is performed using a constant current source operating at a current density of from about 0.05 to about 50 milliAmps/$cm^2$.

7. (Previously Presented) The method of Claim 1 wherein said porous region of vacancies or voids has a porosity of about 0.01% or greater.

8. (Previously Presented) The method of Claim 1 further comprising forming a Si-containing layer upon the Si-containing substrate between said providing the structure and said implanting oxygen steps.

9. (Previously Presented) The method of Claim 8 wherein said Si-containing layer comprises epitaxial Si, amorphous Si, SiGe, single or polycrystalline Si or any combinations thereof.

10. (Previously Presented) The method of Claim 1 further comprising baking the structure between said providing and said implanting steps, with or without subsequent Si-containing layer growth.

11. (Previously Presented) The method of Claim 10 wherein said baking the structure is performed in a hydrogen-containing ambient at a temperature from about 800° to about 1200°C.

12. (Canceled)

13. (Original) The method of Claim 1 wherein said implanting step is performed using a beam

current density from about 0.05 to about 500 milliAmps/$cm^2$, an energy from about 40 to about 1000 keV, and a temperature from about 200° to about 600° C.

14. (Canceled)

15. (Canceled)

16. (Original) The method of Claim 1 wherein said implanting step further comprises a second oxygen implant step.

17. (Original) The method of Claim 16 wherein said second implant step is performed at an oxygen dose from about 1E14 to about 1E16 atoms/$cm^2$ using a beam current density from about 0.05 to about 5 milliAmps/$cm^2$, an energy from about 40 to about 1000 keV, and a temperature from about 4K to about 200° C.

18. (Currently Amended) The method of Claim 1 wherein the first annealing is performed in an oxygen-containing ambient.

19. (Original) The method of Claim 18 wherein the oxygen-containing ambient further comprises an inert gas.

20. (Original) The method of Claim 19 wherein the oxygen-containing ambient is selected from the group consisting of $O_2$, NO, $N_2O$, ozone, and air.

21. (Currently Amended) The method of Claim 1 wherein the first annealing is performed at a temperature of from about 650°C to about 1350°C.

22. (Currently Amended) The method of Claim 1 wherein the first annealing forms a surface oxide atop the Si-containing over-layer.

23. (Currently Amended) A method of fabricating a silicon-on-insulator (SOI) substrate comprising:

providing a structure comprising at least a doped Si-containing substrate that has a porous region of vacancies or voids located therein;

forming a Si-containing layer atop said structure;

blanket implanting oxygen ions to a uniform depth into said structure using an oxygen dose of about 1E16 to about 5E16 atoms/$cm^2$;

first annealing the structure containing implanted oxygen ions and vacancies or voids in an oxidizing environment to form a silicon-on-insulator structure that includes a doped Si-containing over-layer and a buried oxide, said buried oxide having a thickness of about 100 nm or less; and

next annealing the silicon-on-insulator structure in a hydrogen containing ambient to reduce the level of dopant atoms in the doped Si-containing over-layer within the silicon-on-insulator structure.

24. (Currently Amended) A method of fabricating a silicon-on-insulator (SOI) substrate comprising:

providing a structure comprising at least a doped Si-containing substrate that has a porous region of vacancies or voids located therein;

subjecting said structure to a bake step, said bake step is performed in a hydrogen-containing ambient;

blanket implanting oxygen ions to a uniform depth into said structure using an oxygen dose of

about 1E16 to about 5E16 atoms/$cm^2$;

first annealing the structure containing implanted oxygen ions and vacancies or voids in an oxidizing environment to form a silicon-on-insulator structure that includes a doped Si-containing over-layer and a buried oxide, said buried oxide having a thickness of about 100 nm or less; and

next annealing the silicon-on-insulator structure in a hydrogen containing ambient to reduce the level of dopant atoms in the doped Si-containing over-layer within the silicon-on-insulator structure.

25. (Previously Presented) The method of Claim 24 further comprising forming a Si-containing layer atop said structure, said forming said Si-containing layer occurs between said subjecting and said implanting steps.